

CLAIMS:

1. Method for compensating tilt (θ) of an optical disc (2) in an optical disc drive apparatus (1), the optical disc drive apparatus comprising an optical lens (34) which is mounted such as to be pivotable; the method comprising the steps of:

- selecting a tilt-dependent parameter (A_{TE}) having an extreme value when the tilt angle is zero;

- measuring, at a certain radius of the optical disc, the value ($A_{TE(i)}$) of said tilt-dependent parameter for several values ($\psi(i)$) of a pivot angle of said optical lens (34);

- calculating the optimum pivot angle (ψ_{OPT}) corresponding to an optimum point (81) of a parabolic fit (80) through the measurements ($\psi(i)$, $A_{TE(i)}$);

- selecting said optimum pivot angle (ψ_{OPT}) as setting for said optical lens (34) during a write or read action at said certain radius.

2. Method according to claim 1, wherein said pivot angle (ψ) is kept constant during a measurement.

3. Method according to claim 1, wherein, after a measurement, said pivot angle (ψ) is changed stepwise.

4. Method according to claim 1, wherein said value ($A_{TE(i)}$) of said tilt-dependent parameter is measured as an average value over substantially one disc revolution.

5. Method according to claim 1, wherein, during said measurements, said pivot angle of said optical lens (34) is continuously changed by a harmonic motion of the optical lens.

6. Method according to claim 5, wherein said harmonic motion has a frequency lower than the disc rotation speed.

7. Method according to claim 5, wherein said measurements are to be performed within a predetermined measuring range $[\psi_{\text{MIN}}, \psi_{\text{MAX}}]$, and wherein the amplitude (A_W) of said harmonic motion is larger than half the size ($\psi_{\text{MAX}} - \psi_{\text{MIN}}$) of said measuring range $[\psi_{\text{MIN}}, \psi_{\text{MAX}}]$.

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8. Method according to claim 7, wherein, during the time period (t_j) that the pivot angle (ψ) is outside said measuring range $[\psi_{\text{MIN}}, \psi_{\text{MAX}}]$, a radial actuator (41) is controlled to perform a jump to another radius.

10 9. Method according to claim 1, wherein said optimum pivot angle ($\psi_{\text{OPT}}(r_j)$) is calculated for a certain number of different measuring radii (r_j).

10. Method according to claim 9, wherein a relationship between optimum pivot angle ($\psi_{\text{OPT}}(r_j)$) and radius (r_j) is stored in a memory (96);

15 and wherein, when performing a write or read action at a certain disc radius (r), the pivot angle (ψ) of said optical lens (34) is set to an optimum pivot angle ($\psi_{\text{OPT}}(r_j)$) on the basis of said relationship stored in said memory.

11. Method according to claim 9, wherein said measurements are performed for one measuring radius during one sweep of the pivot angle (ψ) within said measuring range $[\psi_{\text{MIN}}, \psi_{\text{MAX}}]$; wherein, during the time period (t_j) that the pivot angle (ψ) is outside said measuring range $[\psi_{\text{MIN}}, \psi_{\text{MAX}}]$, a radial actuator (41) is controlled to perform a jump to another radius; and wherein said measurements are performed for said other measuring radius during the subsequent sweep of the pivot angle (ψ) within said measuring range $[\psi_{\text{MIN}}, \psi_{\text{MAX}}]$.

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12. Method according to claim 1, wherein said tilt-dependent parameter (A_{TE}) is derivable from an output signal (S_R) of an optical detector (35) of said optical disc drive apparatus.

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13. Method according to claim 12, wherein said tilt-dependent parameter (A_{TE}) is a measure for the amplitude of a tracking error signal (S_{TE}), preferably a push-pull tracking error signal (S_{TE}).

5 14. Method according to claim 12, wherein said tilt-dependent parameter is a peak amplitude of said tracking error signal, or a signal power of said tracking error signal, or an RMS value of said tracking error signal, or an absolute value of said tracking error signal.

15. Optical disc drive apparatus (1), comprising:

- 10 - an optical system (30) for scanning tracks of an optical disc (2), which optical system (30) comprises light beam generating means 31, an objective lens 34 for focussing a light beam (32b) on the disc (2), an optical detector (35) for detecting a reflected light beam (32d), said objective lens (34) being mounted such as to be pivotable;
- a controllable pivot actuator (43) for pivoting the objective lens (34) with
15 respect to the disc (2);
- a control circuit (90) having an input (91) for receiving an output signal (S_R) from the optical detector (35), and having an output (95) coupled to a control input of said pivot actuator (43);

20 wherein the control circuit (90) is adapted to perform a tilt compensating method according to any of claims 1-14.